

Notice of Allowability

Application No.

10/758,778

Examiner

Tung S Lau

Applicant(s)

MOERIG ET AL.

Art Unit

2863

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 1-16-2004.
2. ☒ The allowed claim(s) is/are 10-14 and 39-53.
3. ☒ The drawings filed on 16 January 2004 are accepted by the Examiner.
4. ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☐ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
 6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☒ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date See office action
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☐ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

DETAILED ACTION

1. The Preliminary amendment, divisional application priority filed on 5-14-2004 is acknowledged by the examiner.

Information Disclosure Statement

2. The IDS filed on 5-19-2004 has been accepted and signed by the examiner.

Prior art cited

3. Andersen (U.S. Patent 5,410,517) discloses a method for cascading or linking seismic vibrator sweeps to form a cascaded sweep sequence. According to the method, a first cascaded sweep sequence is generated containing N sweep segments linked end-to-end. The N sweep segments are substantially identical, except that the initial phase angle of each sweep segment within the sweep sequence is progressively rotated by a constant phase increment of about $360/N$ degrees.

Allowable Subject Matter

4. Claims 10-14, 39-53 are allowed.

Reasons for Allowance

5. The following is an examiner's statement of reasons for allowance:

Independent claims 10, 41 and 47 contain allowable subject matter. None of the prior art of record shows or fairly suggests the claimed invention.

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Regarding claim 10:

The primary reason for the allowance of claim 10 is the inclusion of the method steps of N sweep segments being substantially identical, except that the initial phase angles of said N sweep segment are progressively routed by a constant phase increment of about $2m\pi/N$ radians where m is greater than 1. It is these features found in the claim, as they are claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes this claim allowable over the prior art.

Claims 11-14, 39, 40 are allowed due to their dependency on claim 10.

Regarding claim 41:

The primary reason for the allowance of claim 41 is the inclusion of the method steps of repeating a-c times wherein the phase shift by $2\pi/m$ radians to give total m recorded signals and nxm ground signal. It is these features found in the claim, as they are claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes this claim allowable over the prior art.

Claims 42-46 are allowed due to their dependency on claim 41.

Regarding claim 47:

The primary reason for the allowance of claim 47 is the inclusion of the method steps of selecting initial phase angles for each sweep segment of each reference signal so that all harmonics up to and including highest order harmonic are suppressed and driving each vibratory source with its sweep sequence and reference signal. It is these

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features found in the claim, as they are claimed in the combination, that has not been found, taught or suggested by the prior art of record which makes this claim allowable over the prior art.

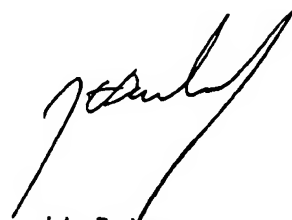
Claims 48-53 are allowed due to their dependency on claim 47.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

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6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tung S Lau whose telephone number is 571-272-2274. The examiner can normally be reached on M-F 9-5:30. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Barlow can be reached on 571-272-2269. The fax phone numbers for the organization where this application or proceeding is assigned is 703-872-9306. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

TL



John Barlow
Supervisory Patent Examiner
Technology Center 2800